6J7
6J7-G
6J7-GT

RCA

# 6J7, 6J7-G, 6J7-GT
# SHARP-CUTOFF PENTODE

## GENERAL DATA

**Electrical:**

Heater, for Unipotential Cathode:

| | | |
|---|---|---|
| Voltage | 6.3 | ac or dc volts |
| Current | 0.3 | amp |

Direct Interelectrode Capacitances:

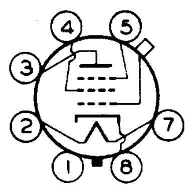
| *Pentode Connection:* | 6J7▲ | 6J7-G | 6J7-GT | |
|---|---|---|---|---|
| Grid No. 1 to Plate | 0.005 max. | 0.007 max.● | 0.005 max.● | μμf |
| Input | 7 | 4.6● | 4.6● | μμf |
| Output | 12 | 12● | 12● | μμf |
| *Triode Connection:** | | | | |
| Grid No. 1 to Plate | 2 | 1.8□ | 1.8□ | μμf |
| Grid No. 1 to Cath. | 5 | 2.6□ | 2.6□ | μμf |
| Plate to Cathode | 14 | 17□ | 17□ | μμf |

**Mechanical:**

| | 6J7 | 6J7-G | 6J7-GT |
|---|---|---|---|
| Mounting Position | Any | Any | Any |
| Max. Overall Length | 3-1/8" | 4-15/32" | 3-5/16" |
| Seated Length | 2-7/16" ± 1/8" | 3-3/4" ± 5/32" | 2-5/16" to 2-3/4" |
| Maximum Diameter | 1-5/16" | 1-9/16" | 1-5/16" |
| Bulb | Metal Shell MT8A | ST-12 | T-9 |
| Cap | Miniature | Skirted Miniature | Skirted Miniature |
| Base | Small-Wafer Octal 7-Pin | Small-Shell Octal 7-Pin | Small-Wafer Octal 7-Pin, Sleeve |
| Basing Designation | 7R | G-7R | GT-7R |

BOTTOM VIEW

Pin 1 { 6J7 - Shell; 6J7-G - Internal Shield; 6J7-GT - Base Sleeve }
Pin 2 - Heater
Pin 3 - Plate




Pin 4 - Grid No. 2
Pin 5 - Grid No. 3
Pin 7 - Heater
Pin 8 - Cathode

Cap - Grid No. 1

## AMPLIFIER - Class $A_1$

**Maximum Ratings,** ***Design-Center Values:***

| | | |
|---|---|---|
| PLATE VOLTAGE | 300 max. | volts |
| GRID-No.2 (SCREEN) VOLTAGE | 125 max. | volts |
| GRID-No.2 SUPPLY VOLTAGE | 300 max. | volts |
| PLATE DISSIPATION | 0.75 max. | watt |
| GRID-No.2 DISSIPATION | 0.1 max. | watt |

(continued on next page)

▲ With shell connected to cathode.
□ Without external shield.
● With external shield connected to cathode.
* With grid No.2 and grid No.3 connected to plate.



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## SHARP-CUTOFF PENTODE

| | | | | |
|---|---|---|---|---|
| GRID-No.1 (CONTROL-GRID) VOLTAGE: | | | | |
| Positive bias value | | 0 max. | | volts |
| PEAK HEATER-CATHODE VOLTAGE: | | | | |
| Heater negative with respect to cathode | | 90 max. | | volts |
| Heater positive with respect to cathode | | 90 max. | | volts |

**Typical Operation and Characteristics:**

| | | | | |
|---|---|---|---|---|
| Plate Voltage | 100 | 250 | . . | volts |
| Grid No.3 (Suppressor) | Connected to cathode at socket | | | |
| Grid-No.2 Voltage | 100 | 100 | . . | volts |
| Grid-No.1 Voltage | -3 | -3 | . . | volts |
| Plate Resistance (Approx.) | 1 | # | . . | megohm |
| Transconductance | 1185 | 1225 | . . | µmhos |
| Grid-No.1 Bias (Approx.) for cathode-current cutoff | -7 | -7 | . . | volts |
| Plate Current | 2 | 2 | . . | ma |
| Grid-No.2 Current | 0.5 | 0.5 | . . | ma |

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance . . . . . . . . 1 max. megohm

### AMPLIFIER - Class $A_1$

*Triode Connection - Grids No.2 & No.3 Connected to Plate*

**Maximum Ratings,** ***Design-Center Values*****:**

| | | |
|---|---|---|
| PLATE VOLTAGE | 250 max. | volts |
| PLATE DISSIPATION (Total) | 1.75 max. | watts |
| GRID-No.1 VOLTAGE: | | |
| Positive bias value | 0 max. | volts |
| PEAK HEATER-CATHODE VOLTAGE: | | |
| Heater negative with respect to cathode | 90 max. | volts |
| Heater positive with respect to cathode | 90 max. | volts |

**Typical Operation and Characteristics:**

| | | | | |
|---|---|---|---|---|
| Plate Voltage | 180 | 250 | . . | volts |
| Grid-No.1 Voltage | -5.3 | -8 | . . | volts |
| Amplification Factor | 20 | 20 | | |
| Plate Resistance (Approx.) | 11000 | 10500 | . . | ohms |
| Transconductance | 1800 | 1900 | . . | µmhos |
| Plate Current | 5.3 | 6.5 | . . | ma |

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance . . . . . . . . 1 max. megohm

### BIASED DETECTOR

**Typical Operation:**

| | | | | | |
|---|---|---|---|---|---|
| Plate-Supply Voltage♦ | 100 | 100 | 250 | 250 | volts |
| Grid No.3 | Connected to cathode at socket | | | | |
| Grid-No.2 Voltage | 12 | 30 | 50 | 100 | volts |
| RF Grid-No.1 Volts (RMS)* | 1.05 | 1.6 | 1.18 | 1.37 | volts |

#,♦,*: See next page.

# 6J7, 6J7-G, 6J7-GT
## SHARP-CUTOFF PENTODE

| | | | | | |
|---|---|---|---|---|---|
| Cathode-Bias Resistor. | 18000 | 10000 | 3000 | 10000 | ohms |
| Zero-Sig. Cathode Cur. | 0.063 | 0.183 | 0.65 | 0.43 | ma |
| Plate Resistor . . . . | 1.0 | 0.25 | 0.25 | 0.5 | megohm |
| Blocking Capacitor . . | 0.01 | 0.01 | 0.3 | 0.3 | μf |
| Grid Resistor● . . . . | 1.0 | 0.5 | 0.25 | 0.25 | megohm |

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance . . . . . . . . 1 max. megohm

# Greater than 1 megohm.

♦ Voltage at plate will be "Plate-Supply" voltage minus voltage drop in plate resistor caused by plate current.

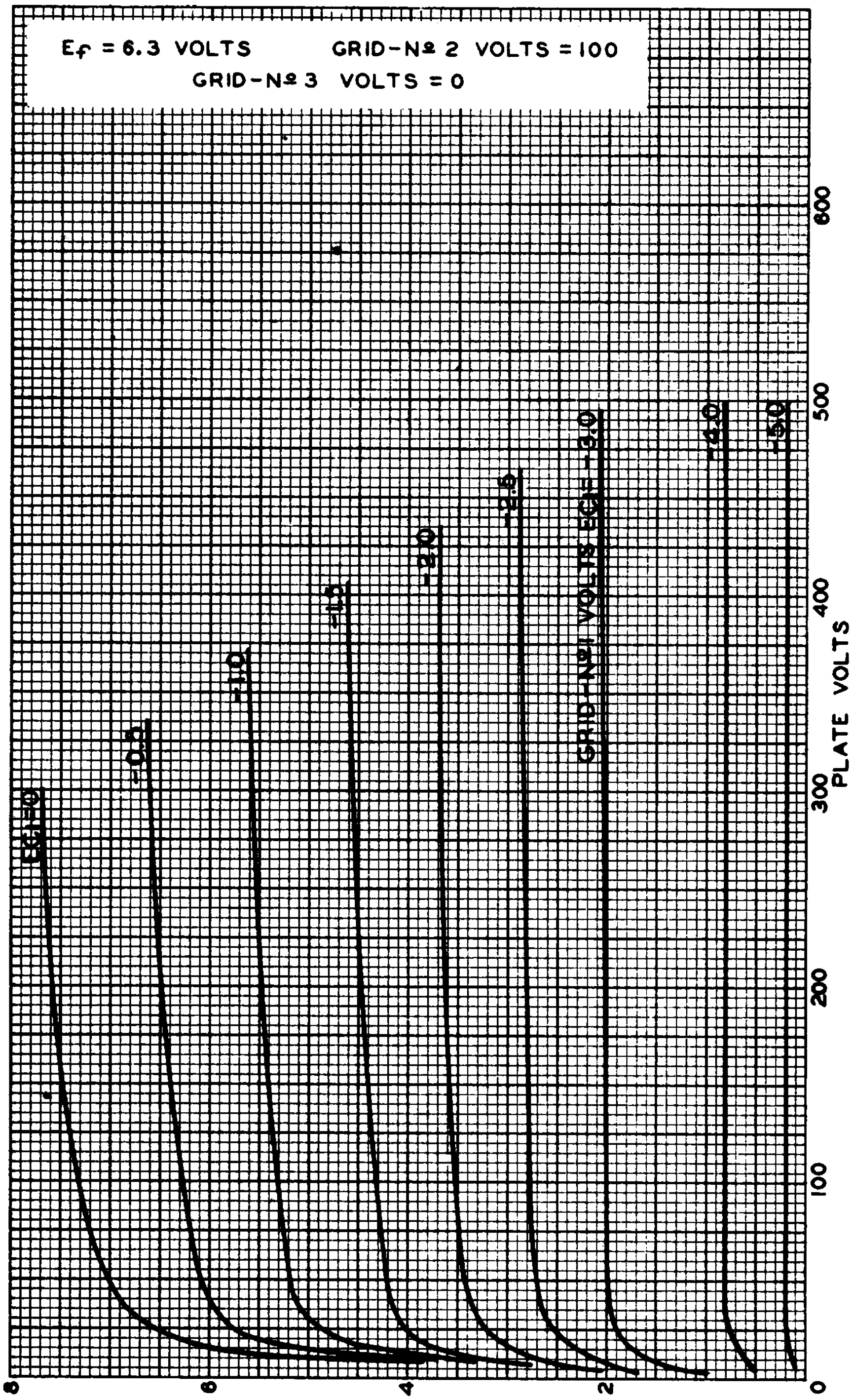
★ With these signal values modulated 20%, the voltage output under each set of conditions is 17 peak volts at the grid of the following amplifier. This value is sufficient to insure full audio output from a 6F6 (class A pentode) at 250 volts on plate.

● For the following amplifier tube.

*For additional data, see RESISTANCE-COUPLED AMPLIFIER CHARTS at the front of this Section.*

# 6J7

## AVERAGE PLATE CHARACTERISTICS



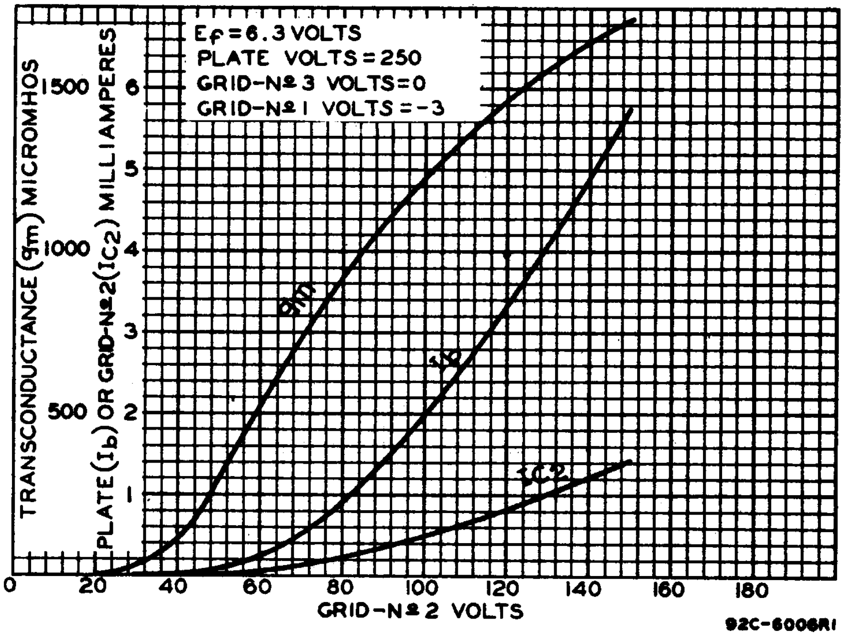

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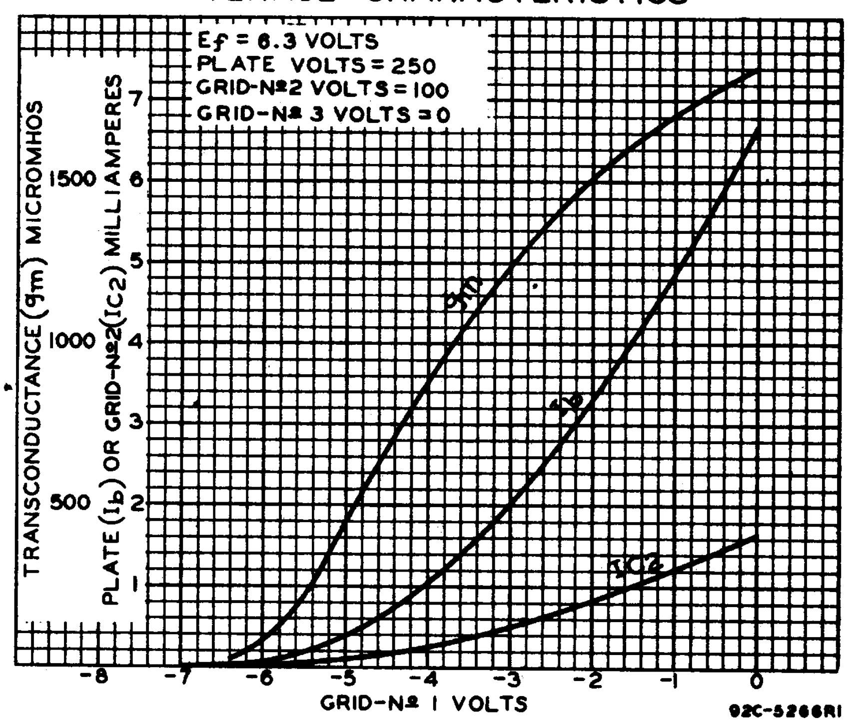
# 6J7

## AVERAGE CHARACTERISTICS




92C-6006R1

## AVERAGE CHARACTERISTICS




92C-5266R1

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6J7

# AVERAGE PLATE CHARACTERISTICS
## TRIODE CONNECTION

